Data from hatchery growth studies indicated that two of the selected lakes and streams tested exhibited consistently superior growth rates. Overall results of the experimental fishing indicated possible trends towards more catchable populations, but no one population could be termed most catchable. Although the data do not establish a certain population as being the fastest growing or most catchable, it has been shown that large variations in these characteristics do exist. Those populations exhibiting trends towards faster growth and greater catchability can provide desirable parent stocks for the selective development of these characteristics.

LITERATURE CITED

Bennett, G. W. 1954. Largemouth bass in Ridge Lake, Coles County, Illinois. Ill. Nat. Hist. Surv. Bull. 26(2):217-276.

Bowers, C. C. and M. Martin. 1957. Results of an opening week creel census and tagging study on three state owned lakes. Ann. Conf. S. E. Assoc. Game & Fish Comm. Proc. 10:244-254.

Byrd, J. B. 1959. Angling success and seasonal distribution of catch in Alabama's state-owned public lakes. North Am. Wildl. Conf. Proc. 24:225-237.

Clugston, J. P. 1964. Lrowth of the Florida largemouth bass, *Micropterus salmoides floridanus* (LeSuerr), and the northern largemouth bass, *M. s. salmoides* (Lacepede), in subtropical Florida. Trans. Am. Fish. Soc. 93(2):146-154.

Pardue, C. B. and F. E. Hester. 1966. Variation in growth rate of knownage largemouth bass (*Micropterus salmoides* Lacepede) under experimental conditions. Proc. S. E. Assoc. Game & Fish Comm. 20:300-310.

MONTHLY FOOD HABITS OF VARIOUS SIZE GROUPS OF BLACK CRAPPIE IN LAKE OKEECHOBEE

by

LOTHIAN A. AGER

Fisheries Division

Florida Game and Fresh Water Fish Commission

Lake Okeechobee Biological Station

Okeechobee, Florida 33472

ABSTRACT

Concurrent with other life history investigations of black crappie, *Pomoxis nigromaculatus* (LeSeuer), in Lake Okeechobee, monthly examinations of stomach contents were made. Three food items — amphipods, oppossum shrimp, and fish — comprised the bulk of the diet. A change in diet occurred in early winter when the occurrence and number of tendipeds dropped to a very low level, and again in late srping to early summer when tendipeds began to comprise a substantial portion of the diet. Data collected indicate tendipeds were primarily ingested as the pupae move toward the water surface and leave their cases rather than being picked from the bottom mud. Small black crappie (from 60 to about 240 millimeters) primarily utilized crustaceans and insects as food items. Increasingly larger fish more frequently utilized fish as food.

INTRODUCTION

Lake Okeechobee, a 730 square mile freshwater lake in peninsula Florida, supports a nationally famous winter black crappie fishery. The lake basin contains about 80,000 acres of freshwater marsh comprised of over 150 species of plants. The remainder of the basin is limnetic providing over 350,000 acres of habit for the pelagic black crappie. Bottom substrates are principally muck, sand, marl, and rock.

Concurrent with other life history investigations of the black crappie, *Pomoxis nigromaculatus* (LeSeuer), examinations of stomach contents of black crappie were made. There are no previously published food habit studies of this species for Lake Okeechobee.

This investigation of monthly food habits of black crappie was begun in August, 1971 and concluded in July, 1972. Huish (1957) found threadfin shad to be a major summer food item of black crappie examined from Lake George, Florida. Dendy (1946) observed that adult black crappie fed on aquatic insects during spring and early summer in Norris Reservior, Tennessee, but relied primarily on young fish in late summer and fall. Reid (1950) reported black crappie to have fed on fishes and to a lesser extent, on Malacostraca, dipterous larvae, pupae and adults, and Entomostraca in Orange Lake, Florida.

METHODS

Twenty-five black crappie were collected monthly from each of two locations on the lake by means of a forty-foot otter trawl towed with an outboard motor. The trawl net had two and one-half inch stretched mesh in the throat and two inch stretched mesh in the bag. The two locations, designated North and South, were approximately twenty miles apart. The North location was over a mud substrate and in an area where an apparent concentration of black crappie occurs. The South location was over a marl and scattered rock substrate.

The fish were placed on ice in a cooler and transported immediately to the laboratory where the fish were measured (total length) and stomachs removed and placed into formalin. Later stomach analysis consisted of frequency of occurrence and number of items for the various organisms found.

RESULTS AND DISCUSSION

Three food items comprised the bulk of the diet of black crappie — amphipods (*Hyalla* and *Gammarus*), oppossum shrimp (*Mysidopsis*), and fish. Two additional items occurred commonly from black crappie collected at the North location over a mud substrate — tendiped pupae and phantom midges (*Chaoborus*). These two items were not a substantial part of the diet of fish collected at the South location over a marl and scattered rock substrate. Detailed analysis of stomach contents is presented in Table 1.

Table 1. Frequency of occurrence and number of food items by category from black crappie collected monthly from two locations for the period: August, 1971 through July, 1972.

	Frequency of Occurrence			
Organisms	*No. of Stomachs*	*Percent*	*Number of Items*	*Percent by Number*
Crustacea	442	73.67	7,062	87.71
Amphipoda	325	54.17	2,475	30.74
Decapoda	6	1.00	6	0.08
Mysidacea	294	49.00	4,285	53.22
Isopoda	117	19.50	293	3.64
Cladocera	2	0.33	2	0.03
Ostracoda	1	0.17	1	0.01
Remains	309	51.50	——	—.—
Insecta	138	23.00	702	8.72
Diptera				
Chaoborids	40	6.67	129	1.60
Tendipeds	74	12.33	565	7.02
Trichoptera	1	0.17	1	0.01
Coleoptera	4	0.67	4	0.05
Homoptera	3	0.50	3	0.04
Hemiptera	1	0.17	1	0.01
Hymenoptera	2	0.33	2	0.03
Remains	78	13.00	——	—.—
Gastropoda	18	3.00	38	0.47
Annelida	2	0.33	2	0.03
Fish and Fish Remains	249	41.50	245	3.04
Fish Eggs	3	0.50	3	0.04
Unidentified Material	3	0.50		

Total number of Stomachs Examined: 600
Total Number of Stomachs Containing Food: 514
Total Number of Items: 8,052

By inspection of the data on a monthly basis (Figures 1 and 2), the only significant change in diet of black crappie occurred in early winter when the occurrence and number of tendipeds dropped to a very low level in those fish collected from the North location and again in late spring to early summer when tendipeds began to comprise a significant portion of the diet. Observation indicated these food items were primarily ingested as the pupae move toward the water surface and leave their cases rather than larvae being picked from the bottom mud.

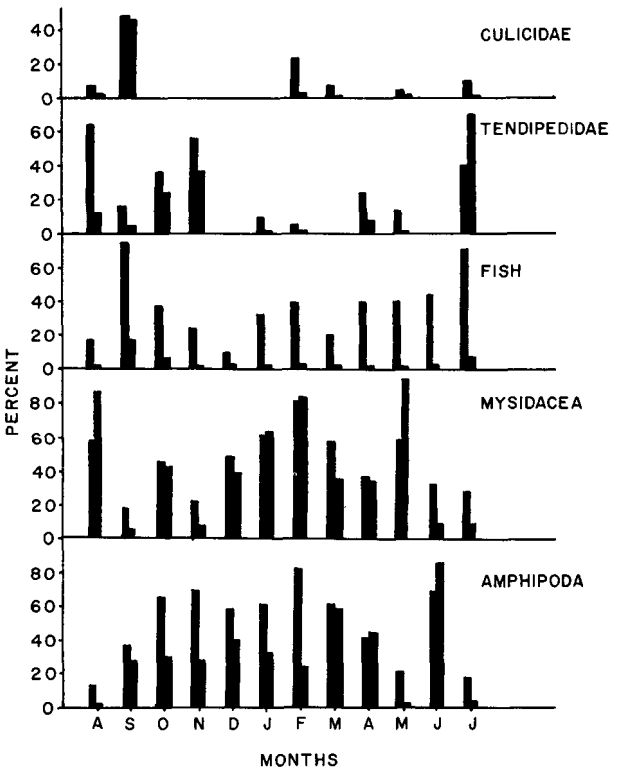

Figure 1. Percent frequency of occurrence (left) and percent by number (right) of the main groups of food items of black crappie collected monthly from the North sample station.

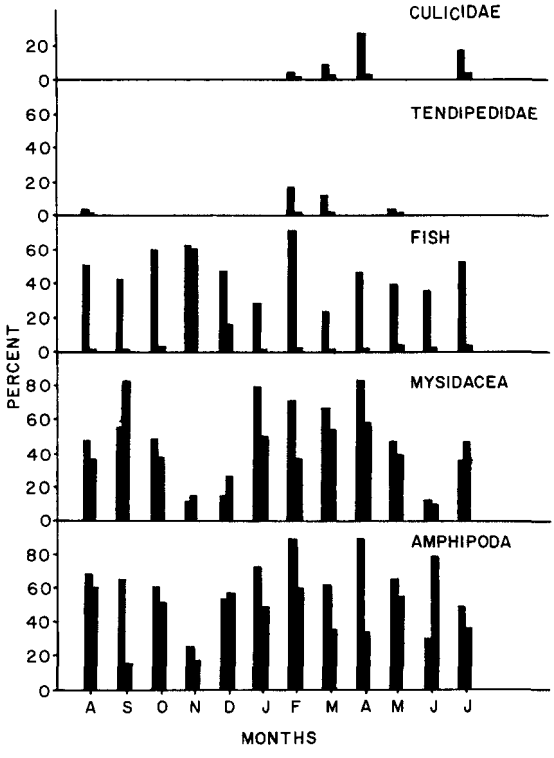

Figure 2. Percent frequency of occurrence (left) and percent by number (right) of the main groups of food items of black crappie collected monthly from the South sample station.

Table 2. Frequency of occurrence of the main groups of food items found in respect to size groups of black crappie.

Size Group (Millimeters)	*Number of Stomachs*	*Crustacea*	*Insecta*	*Gastropoda*	*Annelida*	*Fish and Fish Remains*	*Fish Eggs*	*Unidentified Material*	*Empty*
114 to 138	2	2	1	—	—	—	—	—	0
139 to 163	67	56	19	—	—	21	—	2	7
164 to 188	154	137	47	5	1	57	—	—	9
189 to 214	143	107	34	7	—	56	3	1	21
215 to 239	55	43	8	5	—	22	—	—	8
240 to 265	71	44	13	1	1	45	—	—	8
266 to 290	54	27	9	—	—	18	—	—	20
291 to 315	45	20	7	—	—	25	—	—	11
316 to 341	9	6	—	—	—	5	—	—	2
342 to 369	0	—	—	—	—	—	—	—	—
TOTAL	600	442	138	18	2	249	3	3	86
			% of Frequency of Occurrence of All Stomachs						
114 to 138	2	100.00	50.00	—.—	—.—	—.—	—	—	—.—
139 to 163	67	83.58	28.36	—.—	—.—	31.34	—	2.99	10.45
164 to 188	154	88.96	30.52	3.25	0.65	37.01	—	0.70	5.84
189 to 214	143	74.83	23.78	4.90	—.—	39.16	2.10	—	14.69
215 to 239	55	78.18	14.55	9.09	—.—	40.00	—	—	14.55
240 to 265	71	61.97	18.31	1.41	1.41	63.38	—	—	11.27
266 to 290	54	50.00	16.67	—.—	—.—	33.33	—	—	37.04
291 to 315	45	44.44	15.56	—.—	—.—	55.56	—	—	24.44
316 to 341	9	66.67	—.—	—.—	—.—	55.56	—	—	22.22
342 to 369	0	—.—	—.—	—.—	—.—	—.—	—	—	—.—
TOTAL	600	73.67	23.00	3.00	0.33	41.50	0.50	0.50	14.33

Table 3. Frequency of occurrence of the main groups of food items found in black crappie 60 to 147 millimeters in total length.

Size Group (Millimeters)	*Number of Fish*	*Crustacea*	*Insecta*	*Gastropoda*	*Annelida*	*Fish and Fish Remains*	*Fish Eggs*	*Unidentified Material*	*Empty*
36 to 61	3	2	1	—	—	1	—	—	0
62 to 87	2	2	1	—	—	—	—	—	0
88 to 113	3	3	—	—	—	2	—	—	0
114 to 138	1	1	—	—	—	—	—	—	0
139 to 163	1	—	—	—	—	—	—	—	1
TOTAL	10	8	2	—	—	3	—	—	1

Frequency of occurrence of the primary groups of food items in respect to size groups of crappie indicated greater utilization of crustaceans and insects by small black crappie from 60 to about 250 millimeters total length. Black crappie greater than 239 millimeters utilized fish more frequently though there was not a great change in frequency of occurrence of crustaceans or insects in these larger fish (Table 2).

Ten black crappie were collected in June and July 1972 by means of a small otter trawl with one-quarter inch stretched mesh netting. The fish ranged from 60 to 147 millimeters. Stomach analysis (Table 3) indicated the same dominant food items as found in larger crappie.

LITERATURE CITED

Dendy, Jack S. 1946. Food of several species of fish, Norris Reservior, Tennessee. Jour. Tenn. Acad. Sci., 21(1), pp. 105-127.

Huish, Melvin T. 1957. Food habits of three Centrarchidae in Lake George, Florida. Proc. S. E. Assoc. Game and Fish Comm. 11:293-302.

Reid, George K., Jr. 1950. Food of the black crappie *Pomoxis nigromaculatus* (LeSeuer), in Orange Lake, Florida. Trans. Am. Fish. Soc., 79:145-154.

Wildlife Sessions

AN EVALUATION OF STEEL TRAPS FOR TAKING FUR ANIMALS IN COASTAL LOUISIANA[1]

by

A. W. PALMISANO
Louisiana Cooperative Wildlife Research Unit
Louisiana State University
Baton Rouge, Louisiana

HOWARD H. DUPUIE
Louisiana Wild Life and Fisheries Commission
Grand Chenier, Louisiana

ABSTRACT

During the winters of 1972-73 and 1973-74 an evaluation was made of the effectiveness of the leg-hold and killing type (Conibear) trap for taking fur animals in coastal Louisiana. The leg-hold trap caught significantly more nutria and raccoons than the Conibear trap. However, the killing type trap appeared to be more effective for taking muskrats in flooded marshes. Approximately 92 percent of the animals caught in the Conibear were killed by the trap, only 15.8 percent died in the leg-hold. Thirty percent of the nutria taken in the leg-hold trap were undersize and released. Survival of undersize nutria, held briefly in captivity, appeared good.

INTRODUCTION

It is imperative that methods used to take fur animals be periodically evaluated to determine if technological advances have progressed to the point that new techniques should be implemented. Only the most efficient and humane procedures currently available should be recommended.

In spite of long and vigorous efforts to develop more efficient traps, trapping methods have actually changed little since the early explorers discovered and developed the fabulous North American raw fur industry. Great strides have been made in transportation, industry, medicine, and many other human living conveniences, yet the leg-hold trap has changed little over the centuries and is even today the mainstay of the fur industry in the United States.

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